Notice of Allowability	Application No.	Applicant(s)	
	10/038,136	CLEWIS ET AL.	
	Examiner	Art Unit	
	Satish S. Rampuria	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *02/20/2007*.

2. ☒ The allowed claim(s) is/are *1-20*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *3/13/07* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

This action is in response to the amendment filed on 02/20/2007.

Claims 1-20 are allowed.

Claims 1, 8, 12, 17 are amended by the Applicant.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Hunter E. Webb (Reg. No. 54,593) on 03/13/2007.

In the title

Please amend the title as follows.

DIRECTED NON-CYCLIC GRAPH WALKING SYSTEM FOR DATA PROCESSING AND ANALYSIS IN SOFTWARE APPLICATION~~, SKIPS WALKING OF SUB-NODES OF ENCOUNTERED NODE BY DEACTIVATING GRAPH OBSERVER WITH RESPECT TO SUB-NODES~~

In the claims

Please amend claims 1, 4, 6-9,12, 17, 18 as follows.

1. (Currently Amended) A computer implemented graph walking system, comprising:

a processor; and

a memory, including a program executable by the processor, the program including:

a binding system ~~for~~ to bind~~ing~~ a graph observer ~~that looks for~~ to find matching node patterns with a directed non-cyclic graph, ~~for~~ to bind~~ing~~ node patterns that identify distinguishing node attributes of data of a node to node observers that at least one of analyze and process a particular node to generate at least one node pairing, and ~~for~~ to bind~~ing~~ the graph observer to at least one node pattern-node observer pairing;

graph walking logic ~~for~~ to systematically walk~~ing~~ through nodes within the directed non-cyclic graph;

a pattern testing system ~~for~~ to determine~~ing~~ if an attribute of an encountered node matches one of the node patterns;

an event manager ~~for~~ to generate~~ing~~ an encountered event when one of the node observers is bound to a matching node pattern; and

a pruning system ~~that can~~ to deactivate the graph observer with respect to sub-nodes of the encountered node without deleting the sub-nodes if a bound node observer determines that there is no interest in the sub-nodes.

4. (Currently Amended) The graph walking system of claim 1, wherein the pruning system ~~can reactivate~~ reactivates a deactivated graph observer after the sub-nodes of the encountered node have been walked.

6. (Currently Amended) The graph walking system of claim 5, wherein the completed event ~~can cause~~ causes the graph walking logic to repeat the walk through the sub-nodes.

7. (Currently Amended) The graph walking system of claim 1, wherein the pruning system ~~can~~ further ~~cause~~ causes the graph walking logic to bypass walking of the sub-nodes if the graph observer has been deactivated and no other active graph observers exist.

8. (Currently Amended) A computer implemented system for analyzing a directed non-cyclic graph of hierarchical data, comprising:

a processor; and

a memory, including a program executable by the processor, the program including:

a system ~~for binding~~ to bind a plurality of graph observers ~~that look for~~ to find matching node patterns to a directed non-cyclic graph, wherein each graph observer is further bound to a set of node patterns that identify distinguishing node attributes of data of a node and a set of node observers that at least one of analyze and process a particular node;

graph walking logic ~~for~~ to systematically walk~~ing~~ through nodes within the graph;

a first pruning system that ~~can be~~ is instructed by a node observer bound with an associated graph observer to deactivate the associated graph observer until a set of sub-nodes for the encountered node has been walked; and

a second pruning system that ~~can instruct~~ instructs the graph walking logic not to walk the set of sub-nodes for the encountered node without deleting the set of sub-nodes.

9. (Currently Amended) The system of claim 8, wherein the second pruning system ~~will cause~~ causes the set of sub-nodes not to be walked only if all of the plurality of graph observers have been deactivated.

12. (Currently Amended) A computer implemented method for analyzing a directed non-cyclic graph of hierarchical data, comprising the steps of:

binding a plurality of graph observers ~~that look for~~ to find matching node patterns to a directed non-cyclic graph, wherein each graph observer is further bound to a set of node patterns that identify distinguishing node attributes of data of a node and a set of node observers that at least one of analyze and process a particular node;

systematically walking through nodes within the graph;

generating an encounter event and handling the encounter event with a bound node observer when one of the node patterns matches an attribute of an encountered node;

deactivating the graph observer associated with the bound node observer if the bound node observer determines that a set of sub-nodes of the encountered node ~~should~~ is to be pruned; and

bypassing the walking of the set of sub-nodes without deleting the set of sub-nodes if all of the plurality of graph observers have been deactivated.

17. (Currently Amended) A computer program product stored on a recordable medium, which when executed, analyzes a directed non-cyclical graph of hierarchical data, the program product comprising:

program code configured to bind a plurality of tree observers ~~that look for~~ to find matching node patterns to a graph, wherein each graph observer is further bound to a set of node patterns that identify distinguishing node attributes of data of a node and a set of node observers that at least one of analyze and process a particular node;

program code configured to provide graph walking logic for systematically walking through nodes within the graph;

program code configured to provide a first pruning system that ~~can be~~ is instructed by a node observer bound with an associated graph observer to deactivate the associated graph observer until a set of sub-nodes for an encountered node has been walked; and

program code configured to provide a second pruning system that ~~can instruct~~ instructs the graph walking logic not to walk the set of sub-nodes for the encountered node without deleting the set of sub-nodes.

18. (Currently Amended) The program product claim 17, wherein the second pruning system ~~will cause~~ causes the set of sub-nodes not to be walked only if all of the plurality of graph observers have been deactivated.

--END--

Terminal Disclaimer

The terminal disclaimer filed on 03/21/2007disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 6,922,692 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

As pointed out by the Applicants in the Remark that the cited prior art (Patent No. 6,654,761 to Tenev et al. in view of US Patent No. 6,092,044 to Baker et al.) taken alone or in combination fail to teach, in combination with the other claimed limitations, *a binding system to bind a graph observer to find matching node patterns with a directed non-cyclic graph, to bind node patterns that identify distinguishing node attributes of data of a node to node observers that at least one of analyze and process a particular node to generate at least one node pairing, and to bind the graph observer to at least one node pattern-node observer pairing; graph walking logic to systematically walk*

through nodes within the directed non-cyclic graph; a pattern testing system to determine if an attribute of an encountered node matches one of the node patterns; an event manager to generate an encountered event when one of the node observers is bound to a matching node pattern; and a pruning system to deactivate the graph observer with respect to sub-nodes of the encountered node without deleting the sub-nodes if a bound node observer determines that there is no interest in the sub-nodes as recited in the independent claims 1, 8, 12, and 17.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satish S. Rampuria whose telephone number is (571) 272-3732. The examiner can normally be reached on 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y. Zhen can be reached on (571) 272-3708. Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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WEI ZHEN
SUPERVISORY PATENT EXAMINER